Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

PERGAN
The Peroxide Company

Printing date 02.04.2024 Version: 14 (replaces version 13) Revision: 02.04.2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name:** **PEROXAN HX**
· **CAS Number:** 78-63-7
· **EC number:** 201-128-1

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **Application of the substance / the mixture**
Reaction initiator
For industrial use

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
PERGAN GmbH
Hilfsstoffe für industrielle Prozesse
Schlavenhorst 71
D-46395 Bocholt
Tel: +49 2871 9902-0
Fax: +49 2871 9902-50

· **Further information obtainable from:**
Environment protection / Security of labour
Qualified person: E-mail: msds@pergan.com

· **1.4 Emergency telephone number:**
- Tel: +49 2871 9902-0

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**
Org. Perox. C H242 Heating may cause a fire.
Skin Irrit. 2 H315 Causes skin irritation.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the GB CLP regulation.
· **Hazard pictograms**

GHS02 GHS07

· **Signal word** Danger

· **Hazard-determining components of labelling:**
2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane
· **Hazard statements**
H242 Heating may cause a fire.
H315 Causes skin irritation.
· **Precautionary statements**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P370+P378 In case of fire: Use CO2, powder or water spray to extinguish.
P403 Store in a well-ventilated place.
P410 Protect from sunlight.
P411+P235 Store at temperatures not exceeding +40°C. Keep cool.
P420 Store separately.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.
· **vPvB:** This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.

SECTION 3: Composition/information on ingredients

· **3.1 Substances**
· **CAS No. Description** 78-63-7 2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane
· **Identification number(s)**
· **EC number:** 201-128-1

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SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** Take care of personal protection for the first aider.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
Take affected persons into fresh air and keep quiet.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
Immediately remove contaminated clothing.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2 Special hazards arising from the substance or mixture** Under certain fire conditions, traces of other toxic gases cannot be excluded.
Hydrocarbons, carbondioxide and -monoxid.
· **5.3 Advice for firefighters**
· **Protective equipment:** Do not inhale explosion gases or combustion gases.
· **Additional information** Cool endangered receptacles with water spray.
Self-protection first!

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures** Keep away from ignition sources.
In case of further temperature should be cooled with waterspray from a safe distance.
Wear breathing apparatus with filter A during decomposition of materials.
Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:** Ensure adequate ventilation.
Large quantities should be diluted with suitable desensitation agent to a concentration below 10 % before disposal.
Soak up with absorbant material (e. g. Vermiculit) and dispose of in accordance with government regulations.
· **6.4 Reference to other sections** See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
In case of large spillage the environmental authority should be informed.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling** Keep receptacles tightly sealed.
Store in cool, dry place in tightly closed receptacles.
Keep away from heat and direct sunlight.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.
Do not refill residue into storage receptacles.
Restrict the quantity stored at the work place.
Use only in well ventilated areas.
Before break and at the end of work hands should be thoroughly washed.

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Only use tools made of suitable materials (e. g. polyethylene or stainless steel).
Keep away from dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy-metal compounds and amines).
While using do not eat, drink or smoke.
Avoid shock and friction.


Do not smoke.

· **Information about fire - and explosion protection:**
Protect from heat.
Prevent impact and friction.
Fumes can combine with air to form an explosive mixture.


Wear shoes with conductive soles.


Avoid open flames, sparks, direct sunlight and other sources of ignition.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:** Pay attention to the special requirements of your local autorithies for storing dangerous goods.
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Store only in the original receptacle.
Prevent any seepage into the ground.
Use only receptacles specifically permitted for this substance/product.
· **Information about storage in one common storage facility:**
Do not store or park organic peroxide together with heavy metal compounds and amines.
Store away from foodstuffs, drinks and feeding stuffs.
· **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Protect from contamination.
Store in a cool place.
· **Recommended storage temperature (To maintain quality):** +10 .... +40 °C
· **Storage class:** 4.1A
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:** Not required.

· **DNELs**

78-63-7 2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane		
Dermal	DNEL Longterm System	15 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	11 mg/m3 (Worker)

· **PNECs**

78-63-7 2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane	
PNEC Marinewater sed	7.22 mg/kg sed dw (-)
PNEC Freshwater	0.00065 mg/l (AF 10)
PNEC Freshwater sed	72.2 mg/kg sed dw (-)
PNEC Soil	14.4 mg/kg soil dw (-)
PNEC STP	100 mg/l (AF 10)
PNEC Marinewater	0.000065 mg/l (AF 100)

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Appropriate engineering controls** No further data; see section 7.
· **Individual protection measures, such as personal protective equipment**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.

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Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid close or long term contact with the skin.
Avoid contact with the eyes and skin.
Do not eat, drink, smoke or sniff while working.
Use skin protection cream for skin protection.
Be sure to clean skin thoroughly after work and before breaks.

· **Respiratory protection:** In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Use suitable respiratory device when it exceed exposure limit and when insufficiently ventilated.

Filter A2

· **Hand protection** Only use chemical-protective gloves with CE-labelling of category III.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Protective gloves

· **Material of gloves** The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Butyl rubber, BR
Fluorocarbon rubber (Viton)
Nitrile rubber, NBR
Neoprene

· **Penetration time of glove material** The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye/face protection**

Tightly sealed goggles

· **Body protection:**

Protective work clothing

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Physical state**	Fluid
· **Colour:**	colourless - yellowish
· **Odour:**	Characteristic
· **Odour threshold:**	Not determined.
· **Melting point/freezing point:**	< 10 °C
· **Boiling point or initial boiling point and boiling range**	Not applicable.
· **Flammability**	May cause fire.
· **Lower and upper explosion limit**	
· **Lower:**	Not determined.
· **Upper:**	Not determined.
· **Flash point:**	≥ 68 °C
· **Decomposition temperature:**	+80 °C (SADT)
· **pH**	Not determined.
· **Viscosity:**	
· **Kinematic viscosity**	Not determined.
· **Dynamic at 20 °C:**	8 mPas
· **Solubility**	
· **water:**	Undetermined.
· **Partition coefficient n-octanol/water (log value) at 20 °C**	7.34 log POW
· **Vapour pressure at 20 °C:**	<0.01 hPa
· **Density and/or relative density**	
· **Density at 20 °C:**	0.88 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **9.2 Other information**	
· **Appearance:**	
· **Form:**	Fluid

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· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	Not determined.
· **Explosive properties:**	Risk of explosion by shock, friction, fire or other sources of ignition.
· **Change in condition**	
· **Evaporation rate**	Not determined.
· **Information with regard to physical hazard classes**	
· **Explosives**	Void
· **Flammable gases**	Void
· **Aerosols**	Void
· **Oxidising gases**	Void
· **Gases under pressure**	Void
· **Flammable liquids**	Void
· **Flammable solids**	Void
· **Self-reactive substances and mixtures**	Void
· **Pyrophoric liquids**	Void
· **Pyrophoric solids**	Void
· **Self-heating substances and mixtures**	Void
· **Substances and mixtures, which emit flammable gases in contact with water**	Void
· **Oxidising liquids**	Void
· **Oxidising solids**	Void
· **Organic peroxides**	Heating may cause a fire.
· **Corrosive to metals**	Void
· **Desensitised explosives**	Void
· **Other safety characteristics**	
· **Active oxygen**	> 9.9 %

SECTION 10: Stability and reactivity

· **10.1 Reactivity**	No further relevant information available.
· **10.2 Chemical stability**	
· **Thermal decomposition / conditions to be avoided:**	SADT (Self Accelerating Decomposition Temperature) is the lowest temperature at which self accelerating decomposition may occur with substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be cause decomposition at and above the temperature. Contact with incompatible substances can cause decomposition at or below the SADT. No decomposition if used and stored according to specifications. To avoid thermal decomposition do not overheat.
· **10.3 Possibility of hazardous reactions**	Self-accelerating decomposition at SADT.
· **10.4 Conditions to avoid**	No further relevant information available.
· **10.5 Incompatible materials:**	Rapid decomposition by dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy-metal compounds and amines).
· **10.6 Hazardous decomposition products:**	Hydrocarbons, carbondioxide and -monoxid. No hazardous decomposition products if used and stored according to specifications.
· **Additional information:**	Emergency procedures will vary depending on conditions. The customer should have an emergency response plane in place.

SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**		
78-63-7 2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane		
Oral	LD50	>2,000 mg/kg (rattus)
Dermal	LD50	>2,000 mg/kg (rabbit)

· **Skin corrosion/irritation** Causes skin irritation.

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· **11.2 Information on other hazards**

· **Endocrine disrupting properties**
None of the ingredients is listed.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability**
· **Degree of elimination:**

· **Classification:**	
78-63-7 2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane	
Degradation	(Not readily biodegradable) (OECD 301 D)

· **12.3 Bioaccumulative potential**

· **Partition coefficient: nOctanol/water: [Log Kow]**		
78-63-7	2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane	7,34 (20°C)
75-65-0	2-methylpropan-2-ol	0,32 (20°C)
110-05-4	di-tert-butyl peroxide	3,2 (22°C)

· **Bioconcentration factor (BCF)**	
78-63-7 2,5-Dimethyl-2,5-di-(tert.-butylperoxy)-hexane	
BCF	521-839

· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.
· **vPvB:** This substance does not meet the PBT/vPvB criteria of UK REACH, Annex XIII.
· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
· **Additional ecological information:**
· **General notes:** Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**

After diluting with a suitable desentisation agent to 10 %, the solution must be supplied to a special treatment (e. g. thermal utilization) under observance of all official regulations.

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Waste disposal key:** Please contact your hazardous waste disposers to assign the right EWC-(European waste catalog)-number.

· **Uncleaned packaging:**
· **Recommendation:** This material and its container must be disposed of as hazardous waste.

SECTION 14: Transport information

· **14.1 UN number or ID number**	
· **ADR, IMDG, IATA**	UN3103
· **14.2 UN proper shipping name**	
· **ADR**	UN3103 ORGANIC PEROXIDE TYPE C, LIQUID (2,5-DIMETHYL-2,5-DI-(tert.-BUTYLPEROXY)-HEXANE)
· **IMDG, IATA**	ORGANIC PEROXIDE TYPE C, LIQUID (2,5-DIMETHYL-2,5-DI-(tert.-BUTYLPEROXY)-HEXANE)

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· **14.3 Transport hazard class(es)**

· **ADR**

· **Class**	5.2 (P1) Organic peroxides.
· **Label**	5.2

· **IMDG, IATA**

· **Class**	5.2 Organic peroxides.
· **Label**	5.2

· **14.4 Packing group**	
· **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	Warning: Organic peroxides.
· **Hazard identification number (Kemler code):**	-
· **EMS Number:**	F-J,S-R
· **Stowage Category**	D
· **Stowage Code**	SW1 Protected from sources of heat.
· **Segregation Code**	SG35 Stow "separated from" SGG1-acids SG36 Stow "separated from" SGG18-alkalis.
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	25 ml
· **Excepted quantities (EQ)**	Code: E0 Not permitted as Excepted Quantity
· **Transport category**	1
· **Tunnel restriction code**	D
· **RID / GGVSEB:**	like ADR
· **IMDG**	
· **Limited quantities (LQ)**	25 ml
· **Excepted quantities (EQ)**	Code: E0 Not permitted as Excepted Quantity

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Poisons Act**

· **Regulated explosives precursors**
None of the ingredients is listed.

· **Regulated poisons**
None of the ingredients is listed.

· **Reportable explosives precursors**
None of the ingredients is listed.

· **Reportable poisons**
None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I**	Substance is not listed.
· **Seveso category**	P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES
· **Qualifying quantity (tonnes) for the application of lower-tier requirements**	50 t

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· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

· **National regulations:**

· **Other regulations, limitations and prohibitive regulations**
· **Please note:** Take care of the respective local regulations.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Contact:** Tel: +49 2871 9902-0
E-mail: mail@pergan.com

· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Org. Perox. C: Organic peroxides – Type C/D
Skin Irrit. 2: Skin corrosion/irritation – Category 2

· *** Data compared to the previous version altered.**